

# Alkaloids Classification

## Pharmacognosy

1. The ring structure present in strychnine is [GPAT-2023 SHIIFT-1]

- (a) Indole (b) Purine  
(c) Rotating the plane of polarized light (d) Phenanthrene

2. Tropane nucleus is combination of [GPAT-2022]

- (a) Pyrrolidine & Piperidine (b) Pyrrolidine & Pyridine  
(c) Pyrrolidine & Pyridine (d) Piperidine & Oscine

3. Type of alkaloids present in Colchicum [GPAT-2022]

- (a) Tropane alkaloids (b) Steroidal glycoalkaloids  
(c) Amino alkaloids (d) Quinoline alkaloids

4. Which one of the following alkaloids contains isoquinoline nucleus [GPAT-20211]

- (a) Quinine (b) Hyoscyamine (c) Piperine (d) Papaverine

5. Which of the following genera is not the source for tropane alkaloids [GPAT-2017]

- (a) Datura (b) Duboisia (c) Nicotiana (d) Atropa

6. Tropane alkaloids are NOT present in [GPAT-2010]

- (a) Datura stramonium (b) Erythroxylum coca  
(c) Duboisia myoporoides (d) Lobelia inflata

7. Aconitine belongs to the group of [GATE-2004]

- (a) Steroidal alkaloids (b) Terpenoid alkaloids  
(c) Indole alkaloids (d) Quinoline alkaloids

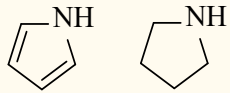
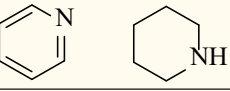

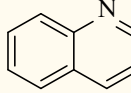
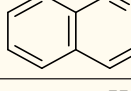
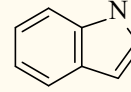

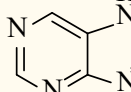
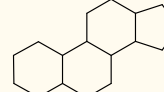
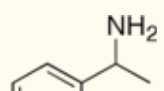
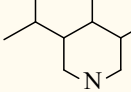
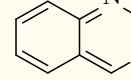
8. Imidazole ring present in

- (a) Pilocarpine (b) Brucine  
(c) Strychnine (d) Caffeine

# CHEMICAL PROPERTIES OF ALKALOIDS

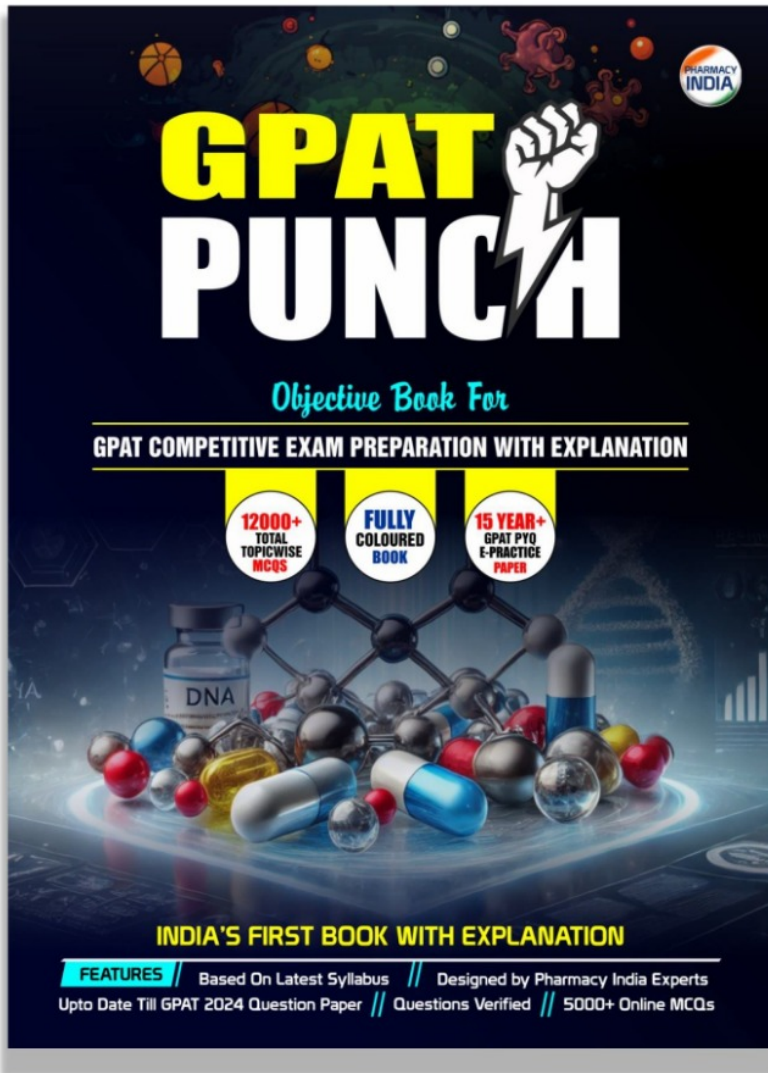
## CLASSIFICATION OF ALKALOIDS

The most accepted classification is based on the fundamental ring structure present in the alkaloid molecule.

Class	Basic Ring Structure	Examples	Source Plant	Trick / Mnemonic
<b>Pyrrole and Pyrrolidine</b>		<b>Hygrine, Coca Species</b>	<b>Erythroxylum coca</b>	<b>"High Coca"</b> → Hygrine from Coca (Coca contains pyrrole-type alkaloid)
<b>Pyridine and Piperidine</b>		<b>Nicotine, Lobeline, Coniine, Arecoline</b>	Nicotiana tabacum, Lobelia inflata, Conium maculatum, Areca catechu	<b>"NLC-A"</b> = Nasha Lagta Constantly – Addictive (Nicotine group)
<b>Tropane (Piperidine + Pyrrolidine)</b>		<b>Atropine, Hyoscyamine, Scopolamine, Cocaine</b>	Atropa belladonna, Hyoscyamus niger, Datura stramonium, Erythroxylum coca	<b>"AHS-Coke"</b> = Anti-Cholinergic Hallucinogen Set – Cocaine
<b>Quinoline</b>		<b>Quinine, Quinidine, Cinchonine, Camptothecin</b>	Cinchona officinalis, Camptotheca acuminata	<b>"Quin-Quad-Cinch-Cam"</b> = Malaria + Anti-tumor Set
<b>Isoquinoline</b>		<b>Papaverine, Morphine, Codeine, Emetine, Berberine</b>	Papaver somniferum, Cephaelis ipecacuanha, Berberis vulgaris	<b>"Papa's Morphine Cures Every Bellyache"</b>
<b>Indole (Benzopyrrole)</b>		<b>Reserpine, Strychnine, Ergotamine, Vincristine, Physostigmine</b>	Rauwolfia serpentina, Strychnos nux-vomica, Claviceps purpurea, Physostigma venenosum	<b>"REVSP"</b> = Reserpine Ergot Vincristine Strychnine Physostigmine – Powerful CNS drugs
<b>Imidazole</b>		<b>Pilocarpine, Isopilocarpine (Histidine-derived)</b>	Pilocarpus jaborandi (Histidine-derived)	<b>"Pilo Pair"</b> = Pilocarpine Duo from Imidazole
<b>Purine (Pyrimidine + Imidazole)</b>		<b>Caffeine, Theobromine, Theophylline</b>	Camellia sinensis, Theobroma cacao, Coffea arabica	<b>"CTT = Coffee Tea Time"</b> – All are CNS stimulants in tea/coffee
<b>Steroidal</b>		<b>Conessine, Solanidine, Protoveratrine</b>	Holarrhena antidysenterica, Solanum spp., Veratrum spp.	<b>"CSP = Cholesterol-Stimulated Power"</b> – Steroid-based action
<b>Alkaloidal Amine / Amino Alkaloids / Alkylamine (Protoalkaloid)</b>		<b>Ephedra, Colchicum</b>	Ephedra sinica, Colchicum autumnale	<b>"Epi-Cold"</b> = Ephedra-Colchicum = Sudden Action Alkaloid
<b>Diterpene</b>		<b>Aconitine, Aconine</b>	Aconitum napellus	<b>"AA = Always Active but Toxic"</b> – Deadly aconites
<b>Quinazoline</b>		<b>Vasicine, Vasicinone</b>	Adhatoda vasica (Vasaka plant)	<b>"Vasic Duo"</b> = Vasicine + Vasicinone – Vasaka plant derivatives



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